

REMARKS

Status Summary

Claims 1-18 are pending in the present application. Claims 1-18 presently stand rejected. Claim 18 is objected to for a dependence informality. Claim 15 is rejected under 35 U.S.C. § 112, second paragraph, because the element “the nodes” is alleged to have insufficient antecedent basis. Claims 1-18 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,697,818 to Li et al. (hereinafter “Li et al.”). New claims 19-21 are added by the present amendment.

Claims 1, 3, 6-11, 14, 16, and 18 have been amended to correct typographical errors and/or more particularly claim aspects of the presently claimed subject matter. Claim 1 has been amended to replace the term “generating” with “generate” to grammatically clarify the phrase “said search engine configured to generate a database graph”. Claim 3 has been amended to replace the phrase “said structured query language” with “said structured language query” to more precisely match the language of Claim 1, wherein the phrase is introduced. Claim 6 has been amended to replace “Claim 1” with “Claim 2” to correct claim dependency. Claim 7 has been amended to replace “computer system” with “computer system search engine” in order to more particularly define the element. Claim 8 has been amended to replace “in” with “an” to correct a typographically error. Claim 9 has been amended to replace “a Client Computer” with “said Client Computer” as the element had been previously introduced. Claim 10 has been amended to replace the phrase “wherein said Database Graph Generation Module” with “further comprising a Database Graph Generation Module which” in order to more particularly recite the claimed subject matter. Claim 11 has been amended to insert “joins module is a” before “Create Joins Module” in order to more particularly recite the claimed subject matter. Claim 14 has been amended to remove “the” before “correct joins” and add “between nodes” after “correct joins”. Claim 14 has also been amended to insert “language” between “structured” and “database”. Claim 14 has also been amended to replace “state” with “statement”. The amendments to Claim 14 have been made to more

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particularly recite the claimed subject matter. Claim 16 has been amended to replace "step" with "steps". Claim 16 has also been amended to delete "search" after "database" and delete "data" and "structured". Claim 16 has been amended to more particularly recite the claimed subject. Claim 18 has been amended to replace "claim 18" with "claim 16" in order to correct claim dependency.

As previously stated, all the claim amendments noted above were made to correct typographically errors and/or more particularly recite the claimed subject matter and not for reasons related to patentability of the claims. Further, the amendments discussed above are merely related to form, and not substantial changes to the claims. Therefore, no new matter was added by these amendments, and no subject matter has been surrendered through any of these amendments.

Claim Objections

The Patent Office has objected to Claim 18 because of improper dependency. Applicant has corrected Claim 18 to depend the claim from Claim 16 as discussed above. Applicant therefore respectfully requests removal of the objection to Claim 18.

Claim Rejection under 35 U.S.C. § 112, Second Paragraph

Claim 15 has been rejected under 35 U.S.C. § 112, second paragraph, as having insufficient antecedent basis for element "the nodes". Claim 14 has been amended to insert the phrase "between nodes" after the phrase "creating correct joins". Support for the amendment can be found throughout the specification and particularly at page 12, lines 30-31. The amendment to Claim 14 provides sufficient antecedent basis for the element "the nodes" in Claim 15. As such, applicant respectfully requests withdrawal of the rejection of Claim 15.

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Claim Rejection - 35 U.S.C. § 102

Claims 1-18 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Li et al. The Patent Office asserts Li et al. teaches all the elements of Claims 1, 7, and 14. However, the Patent Office only discusses in detail the elements of Claim 1 as the Patent Office perceives they relate to the teachings of Li et al. The Patent Office does not address the elements of Claims 7 and 14 with regard to the rejection of these claims on the basis of Li et al.

The contentions of the Examiner as summarized above with respect to Claims 1, 7, and 14 are respectfully traversed as described below.

“A claim is anticipated only if each and every element in the claim is found, either expressly or inherently described, in a single prior art reference.” Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Claim 1 presently recites a system for searching a relational database of biological information, said system comprising a server computer comprising a relational database of biological information and a first module for receiving a structured language query and transferring said query to a search engine, a database graph generation module associated with said search engine configured to generate a database graph, and a joins module configured to create joins between relational database tables based on said database graph, wherein said server computer runs a structured query language (SQL) search on said relational database based upon said joins. Claim 7 presently recites a computer system search engine for searching a relational database of biological information, comprising: a relational database of biological information comprising tables of biological data; a search module configured to receive a structured language query and convert said structured language query into a search statement for querying said relational database of biological information; and a joins module configured to determine how to join said tables of biological data in order to provide the results of said query. Claim 14 presently recites a method for querying a relational database, comprising

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the steps of: sending a structured language database query to a search engine; parsing the relational database and creating a database graph; creating correct joins between nodes corresponding to said query; translating said structured language database query into an SQL statement incorporating said joins; and sending said SQL statement to the relational database. Support for the phrase “relational database” as recited in the claims can be found throughout the specification, and in particular at page 1, lines 13-17 and page 6, lines 18-19. Therefore, no new matter has been added.

Li et al. discloses that relational databases manage structured data well, but are not capable of effectively managing non-structured and semi-structured data. See Li et al. at col. 1, lines 19-38. In an effort to address this perceived problem, Li et al. teaches new database structures for managing non-structured and semi-structured data as well as new “techniques for providing a multi-tier object-relational database architecture.” Li et al. at col. 4, lines 17-19. Li et al. further teaches the novel database architecture comprises an object-relational database engine as a top tier, one or more universal extension modules as a middle tier, and one or more domain specific extension modules as a bottom tier, with each of the modules operably connected across the tiers. See Li et al. at col. 4, lines 19-26.

The extension modules are used to overcome the limitations of relational databases with regard to lacking capabilities for managing non-structured and semi-structured data, such as images, audio, and video. See Li et al. at col. 1, lines 19-67. Li et al. appears to teach that the disclosed multi-tier object-relational database architecture allows for management of non-structured and semi-structured data, which cannot ordinarily be managed by a relational database. Li et al. teaches the multi-tier object-relational database architecture “provides an extensible structure for software modules that can be used to construct an object-oriented extension of a relational database”. Li et al. at col. 5, lines 41-44. This in turn provides “advanced non-relational query processing capabilities”. Li et al. at col. 5, lines 48-49. Therefore, Li et al. appears to teach databases and management systems which are

distinct from relational databases in that they are structured to manage non-structured and semi-structured data.

Claim 1 recites a system for searching a relational database of biological information. Claim 1 further recites in part a server computer comprising a relational database of biological information and a joins module configured to create joins between relational database tables based on a graph. Claim 7 recites a computer system search engine for searching a relational database of biological information. The computer system recited in Claim 7 comprises in part a relational database of biological information comprising tables of biological data. Claim 14 recites a method for querying a relational database. The method of Claim 14 recites in part parsing the relational database to create a database graph, and sending an SQL statement to the relational database.

As discussed above, Li et al. does not teach a relational database as recited in Claims 1, 7, and 14, but rather teaches database architecture for managing non-structured and semi-structured object data using “advanced non-relational query processing capabilities.” Li et al. at col. 5, lines 48-49. Thus, since Li et al. does not teach a relational database, as recited in Claims 1, 7, and 14, Li et al. does not teach each and every element of Claims 1, 7 or 14. Applicant therefore respectfully submits that maintaining a rejection under 35 U.S.C. § 102(e) based on Li et al. is improper. Withdrawal of the rejection of Claims 1, 7, and 14 under 35 U.S.C. § 102(e) as being anticipated by Li et al. is therefore respectfully requested. Allowance of Claims 1, 7, and 14 is also respectfully requested.

With regard to the Patent Office’s rejection of Claims 2-6, 8-13, and 15-18, applicant contends that Li et al. does not teach or suggest all the elements of these claims either. Since Claims 2-6, 8-13, and 15-18 depend either directly or indirectly from Claims 1, 7, and 14, and Li et al. does not teach or suggest all the elements of Claims 1, 7, or 14 for the reasons as stated above, Li et al. does not teach or suggest all of the elements of these dependent claims either. Applicant therefore respectfully

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requests withdrawal of the rejections of Claims 2-6, 8-13, and 15-18 on the basis of Li et al. Allowance of these claims is also requested.

New Claims

New claims 19-21 have been added by this amendment as indicated above. Support for these claims can be found throughout the specification and claims as originally filed. Specifically, support for the new claims can be found at page 12, line 18 through page 13, line 18, as well as Figures 1 and 7. Further, support generally for a computer program product comprising computer-executable instructions embodied in a computer-readable medium can be found in the specification at page 8, lines 7-19. Therefore, no new matter has been added by new claims 19-21.

For the reasons set forth hereinabove, claims 19-21 are believed to be patentably distinguished over the cited art of record. Allowance of claims 19-21 is therefore respectfully requested.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

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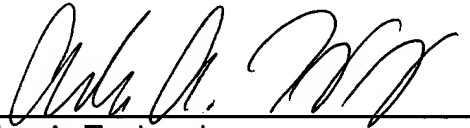
The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. **50-0426**.

Respectfully submitted,

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